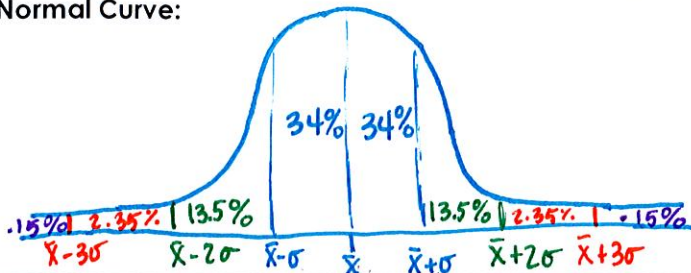


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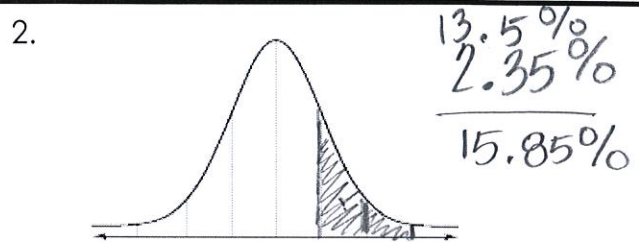
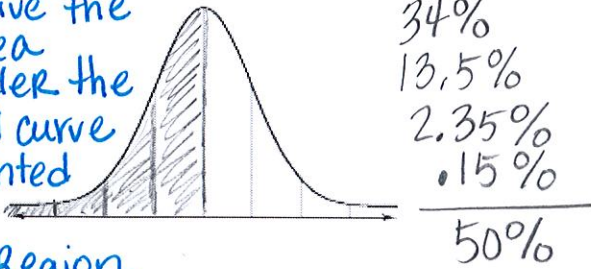
Date: _____

Normal Curve:

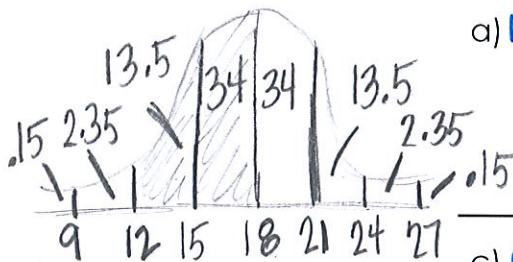


- Bell Shaped Curve
- Symmetric about mean
- Each area determined by adding OR subtracting σ .
- Total Area under curve = 100% OR 1

1. Give the area under the normal curve represented by the shaded region.



3. A normal distribution has a mean of 18 and a standard deviation of 3. Find the probability that a randomly selected x-value from the given distribution is in the interval.



a) Between 12 & 18
 13.5%
 + 34%
47.5%

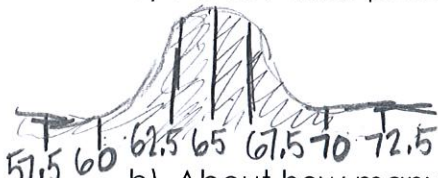
b) A least 21
 21, 22, 23, ... ∞
 13.5%
 2.35%
 0.15%
16%

c) At most 12
 ..., 10, 11, 12
 2.35%
 0.15%
2.5%

d) Between 9 & 21
 2.35%
 13.5%
 34%
 34%
83.85%

4. The heights of 3000 women at a particular college are normally distributed with a mean of 65 inches and a standard deviation of 2.5 inches

a) About what percent of college women have heights below 70 inches?



50%
 34%
 13.5%
97.5%

100%
 - 2.35%
 - 0.15%
97.5%

b) About how many college women have heights between 60 inches and 65 inches?

13.5%
 + 34%
47.5%

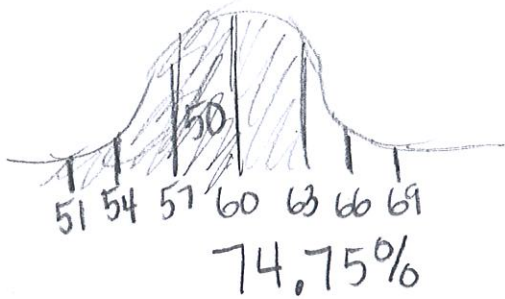
→ 99.18%

c) height less than 71 inches?
 - ∞ , ..., 68, 69, 70, 71

2nd data → Distr
 2: Normal cdf

mean = 65 Lower bnd -1E99
 sigma = 2.5 UPPER bnd 71

5. A particular leg bone for dinosaur fossils has a mean length of 5 feet with standard deviation of 3 inches. What is the probability that a leg bone is less than 62 inches?

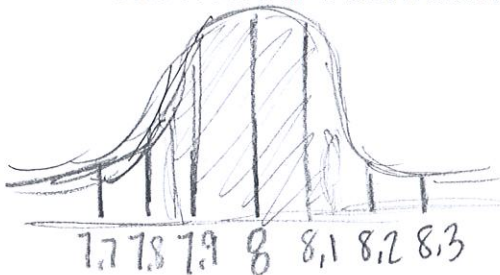


$$5\text{ft} \cdot \frac{12\text{in}}{1\text{ft}} = 60\text{inches}$$

less than 62
 $-\infty, \dots, 60, 61, 62$

2nd data → Distr
 2: Normal cdf
 mean = 60
 sigma = 3
 lower bnd: $-\infty$
 upper bnd: 62

6. The weight of chocolate bars from a particular chocolate factory has a mean of 8 ounces with standard deviation of .1 ounce. What is the probability that a randomly selected bar is between 7.85 and 8.15 ounces?



2nd data → Dist
 2: Normal cdf
 mean = 8
 sigma = .1
 LOWER bnd: 7.85
 UPPER bnd: 8.15

86.64%

7. The grades on a statistics midterm exam were normally distributed with a mean of 72 and a standard deviation of 8.

- a. What is the proportion of students received a B grade.

mean: 72
 sigma: 8
 lower bnd: 80
 upper bnd: 89



14.19%

- b. What is the probability that a randomly selected student received between a 65 and 85?

LOWER bnd: 65
 UPPER bnd: 85

75.71%

- c. What is the proportion of students that failed the exam?

$-\infty, 69 = \text{Fails}$
 LOWER bnd: $-\infty$
 UPPER bnd: 69

35.38%